PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No.	:	10/700,761	) CERTIFICATE OF ELECTRONIC SUBMISSION
Applicant	:	James D. Carper et al	)
Filed	:	November 4, 2003	) I hereby certify that this correspondence is
Title	:	Cling Film Fastening System for Disposable Soft Goods	) being submitted electronically with the United States Patent and Trademark Office's electronic filing system (EFS Web) on this 29th day of April, 2010.
TC/A.U.	:	1771	)
Examiner	:	Matzek, Matthew D.	)
Docket No.	:	100-00222	) Melissa Guzman 4/29/10
Conf. No.	:	6335	) Melissa Guzman Date

DECLARATION UNDER RULE 131

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

We, James D. Carper and Mark D. Alper hereby declare that:

1. We are the joint inventors of the subject matter defined by the claims and described in the specification of the above-identified patent application;

2. We conceived and reduced to practice the invention defined by the claims of the present patent application prior to January 30, 2003;

3. In support of the statement in paragraph 2 herein, we submit Exhibit 1 attached hereto which is a five page invention disclosure document entitled "Invention Record and Report" which was submitted to the Assignee of the present application prior to January 30, 2003 for purposes of preparing a patent application on the subject matter contained therein;

4. The dates blacked out on Exhibit 1 are all prior to January 30, 2003.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

April 29, 2010
Date

James D. Carper
James D. Carper

April 29, 2010
Date

Mark D. Alper
Mark D. Alper

BOSTIK FINDLEY

IR2002-001

cc: D. Carper
J. Merkt
M. Alper
Orig: File

Invention Record and Report

1. Brief descriptive title:

(Pallet Stretch Wrap) Cling Film or a Cling Film Laminate for a Diaper Fastening System

2. Full name of inventor(s), home address(es), and position(s):

James David Carper	
Manufacturing Development Manager	
920 Calico Court	
Waukesha, WI	

3. Recommendation of inventor(s) as to whether patent protection should be sought:

A project must be worked to fully evaluate the potential for this idea.

4. Object or results to be achieved by the practice of this invention:

Low cost Diaper Closure System, possible replacement for hook and loop mechanical fasteners and / or PSA diaper tapes

5. Outline of means discovered of achieving above objects in terms of:

a) The steps in a process,

Process of adhesive bonding a nonwoven to a Cling film and subsequent mechanical or adhesive bonding of the cling ear laminate and cling landing zone laminate (or film) to the diaper

Or,

b) The components in a composition or groups in a chemical compound (including description of process of making) or

Ingredient	% Range

Preferred Embodiment:

Ingredient	%

EXHIBIT 1

c) Elements in a machine, article or device.

A diaper or adult Brief with a closure system comprised of a cling film laminate on the diaper ear and cling film or cling film laminate on the landing zone

Point out means which are essential, others which are important or useful and any critical limitations. (Attach additional pages if needed.)

It is essential that the cling side of the film (or laminate) be bonded to the cling surface of the same (or a different) cling film (or laminate) as is the case when the inside of a diaper ear is applied to the outer surface of a diaper landing zone.

There are several possible variations on this theme, which may be useful:

Cling films having different MD and CD tensile properties, by virtue of different guage thickness and /or differences in co-extruded formulation technology, can provide a range of performance and cost.

A logo or cartoon / character graphics could be printed on the slip side of the cling film to be applied as the landing zone. However, printing to the slip surface may be problematic. A nonwoven laminate, with the printing on the top of the nonwoven layer, which in turn is adhesively boned to clear (or nearly clear film) could solve this problem. Another reason that a laminate might be desired for the landing zone, rather than a single layer of cling film, is ease of converting by our customer. The laminate will be easier to unwind and easier to bond to the diaper coverstock than the cling film.

For the diaper ear, holes could be punched in the cling film prior to making the laminate (or punched in the laminate during or after production of the laminate) down a stripe close to the edge of the ear that will be bonded to the diaper chasis. This would make this region of the ear breathable, an important feature for skin care.

A strip of elastic stretch film could, alternatively, be bonded in this same region as mentioned above to provide stretch and recovery properties to the ear fastener. An elastic film such as VFE from Tredegar Film Products would be a prefered choice. The elastic film could either be bonded to the cling film or perhaps better, bonded to the nonwoven, with a separate strip of cling film bonded to the remaining surface of the nonwoven ear. Another layer of nonwoven could optionally be applied to cover the elastic film strip.

A white cling film or pigmented (colored) film could best match the color of the diaper backsheet and/ or topsheet, which is typically white.

Punching holes in the film or ear laminate, along the edge furthest from the diaper chasis may also help to show the consumer where the edge of the cling film (or laminate) is located to ease opening and reapplication. However, this may cause the edge to lift and lead to weak shear adhesion. Use of color may be a better way to mark the edge. Application of a colored stripe

of hot melt or a strip of color printed on the cling film could assist the consumer in opening and reuse of the invention. Use of one color (such as blue) on the edge of the ear and use of another color (such as yellow) on the Landing zone, could result in a color change (to green in this case) when the two are applied together, giving the consumer a visual cue that the diaper has been fastened properly and showing the edge location for easy reopening / reuse.

Bonding the non-cling side of the film (the "slip" side of the film) will likely be difficult initially and especially problematic over time due to aging effects as the slip agents in the film bloom to the surface. This may require special adhesives with are compatible with or which resist the effects of the slip agents. This may be the subject of additional I. P. for BFI.

Bonding to a non-treated, hydrophobic nonwoven may be preferred in order to avoid hydrophilic surfactants / additives and migration causing subsequent aging issues at the cling film surface. But this is not a limitation of this invention.

A cling film laminate would be wound in roll form such that the cling film surface would be in contact with the nonwoven surface. Free or loose nonwonven fibers or "dust" may interfere with and dimish the subsequent cling film/ cling film bond strength. Therefore, use of a Spunbond nonwoven with continuous fibers may be perferrable over a Carded nonwoven, but this is not a known limitation at this time.

Unwinding the Cling film from the slip side of the film at high speed on our converting lines may require a special handling process or modification of our commercial converting equipment. This may be the subject of additional I. P. for BFI.

Use of plasticizers and / or tackifiers are believed to be the means to give the "cling" property to some coextrueded polyethylene stretch wrap films. Use of certain plasticizers are to be avoided due to safety issues with regard to contact with human babies / skin. This could be a limitation of the current invention. (The model or base film used for the early prototype work is, according to our analytical analysis, is an ethylene acrylate co-polymer layer on a predominately polyethylene film.)

In the packaged diaper the cling ear would normally be folded over on itself (cling surface to cling surface). Folded in this way, the cling surface will be protected from incidental contamination during infant diapering with baby powder, or ointment. However, in this self-folded configuration for an extended period of time, there may be an aging issue that could make for difficult debonding (to open the ear) and / or subsequently, weak cling to the landing zone cling film or laminate. If this is an issue, it could be solved by several routes:

Use of a strip of elastic film strip may solve the problem by folding the cling film portion of the ear over onto the elastic film.

Not folding the cling ear on itself, but rather folding each ear onto the diaper topsheet OR folding one ear onto the topsheet and folding the other cling ear onto the outside of the opposite ear, making contact with the diaper backsheet on the opposite ear. Again, free

nonwoven fibers or dust on the topsheet or cloth-like backsheet may be an issue

Mechanical modification, such as hole punching, all or a part of the cling ear film or cling ear laminate may prevent intimate contact when the ear is folded on itself, and thereby prevent excessive bonding and migration over time,. And if the Landing Zone was not mechinically modified or punched with holes, then the ear could possibly bond to it normally.

Creative use of zoned co-extrusion of the cling flim to eliminate or decrease the cling property on half the ear, but not the far half of the ear that would engage with the cling landing zone.

6. Chronology of principal events in conception and developments:

a) Earliest conception date (reference to substantiating evidence desirable)

[redacted] – David Carper's personal spiral bound note pad with idea and date

b) Date of disclosure (orally or in writing) to other persons and names of such persons:

[redacted], and [redacted] oral disclosure to Tim Holzman BFI.
[redacted] oral disclosure to Larry Vinson, BFI.
[redacted] oral disclosure with drawing to Russ Stuczynski, BFI.
[redacted] oral disclosure to Mark Alper, BFI.
[redacted] oral disclosure with drawing to Paul Grover, BFI.
[redacted] oral disclosure with drawing to Steve Harring, BFI.

c) Date of written description of invention:

[redacted] – Film to film concept reduced to practice at my desk with Unisource supplied film PM3-2015, which is manufactured by Tyco Plastics and others. Many variations on the general concept were written at this time and in the week that followed.
[redacted] – Schematic Drawings of concept with dimensions, showing differernt features and options.
[redacted] – Official BFI Record of Invention

d) Date and result of first test of the invention (if invention is (a) a process, its first test is the first successful trial; if (b) a composition of matter or a compound or (c) a machine, article or device, its first test is its first creation and evaluation with respect to new or improve properties or behavior):

[redacted] Russ Stuczynski produced the first Cling film / Nonwoven Laminate prototype. Additional pilot line work planned for [redacted] and early [redacted].

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7. Date and place (e.g. particular periodical) of publication of disclosure of invention (state whether publication has been accomplished or is planned): None.

8. List published information and practices which provide background of the invention (known practices, periodical citations, patents, etc.):

U.S. Patents	European Patents
	Literature

9. Advantages of invention and any features which would not have been obvious to or readily foreseeable by the typical skilled worker in the field:

Invention uses pallet stretch wrap film, which has a cling property on one side of the film (or other types of cling films, such as Saran Wrap film). These films are normally used by stretching the film and applying the cling side to the slip side of the film, as is the case with pallet wrap, or by stretching the film and applying it to a household object like a glass or plastic bowl. The cling surface of the film has no finger tack and has essentially no adhesion to the the slip side of the film, nor to another object, unless stretched around the edge of the object.

This invention involves application of the cling surface of a film to itself (either the cling surface of the same film or another film) to make a closure system with good peel and shear adhesion and without the need to stretch either cling film (or cling film laminate) in order to obtain good adhesion. The cling film or cling laminate offers significant cost savings over mechanical fasteners or PSA diaper tapes, which are currently, widely in use. Use of a cling film laminate would also make it easier for our customers to convert the material on their lines compared to using unlaminated cling film.

Signed:	J. David Cyper	Date:	[redacted]
	Inventor		
Signed:		Date:	
	Inventor		
Signed:		Date:	
	Inventor		

Witnessed and understood by:	-1	
	Date:	[redacted]
	-2	
	Date:	[redacted]